..CLASSIFIED ADS

33 ASR MANUALS: New by Teletype Corp. 310B Volumes 1 & 2, and 1184B Parts manual $15.00 for a set of three manuals. Have a few sets of Vols 1 & 2 only at $10.00. Also have some cards for the STELMA DAC 5 distortion analyzers. Write your requirements. K8DCM, 7637 Rothfield Dr. Dayton, Ohio 45424.

VIDEO DISPLAY - 1000 Characters, 25 lines, 40 characters. 60, 67, 75, 100 speed. Unshift on space, 60 ma loop, logic inputs, Model 872 Leland Associates. Excellent condition. $375.00 firm, you ship. Dave Gould (503) 393-7737, 4230 Jade N.E. Salem, OR. 97303.

SELL: ALL EXCELLENT CONDITION. HALRVD 1002 Video Display $400.00. HAL ST-6 with AK-1 & 425 Hz $275. HAL RKB-1 keyboard $100.00. HAL DKB 2010 RTTY/CW keyboard with 128 buffer $425.00. Model 28KSR 60 wpm, auto CR-LF. $250.00 Petit MT-5 CW to RTTY translator in custom cabinet $425.00. HAL 1550 keyer with ID and brown paddle $75.00. All factory built, Shipping included except model 28 pick up only. Bernie Burke, WA9PJD, 6455 S. Western, Chicago, IL 60620. Phone (312) 776-7653.

SELL: 2 MODEL 28KSR, Floor cabinet, $225.00 ea. KSR 3 speed transmission $75.00. TH3Mk II beam, $100.00. Shipping extra. W7QCN/4 720 Kingswood Loop, Brondon, FL. 33511. Phone (813) 685-6817.

FOR SALE: MODEL 28KSR, Green floor model cabinet, 100 speed, excellent condition, Prefer pick up if possible. $250.00 Clyde Keeler, W2NQW, 66 Franklin St. Port Jervis, N.Y. 12771.

****

HAL COMMUNICATIONS CORP. announces the availability of the new improved ST-5 manual. ST-5 customers (give us your invoice number) can obtain one for $1.00 ppd, others $3.00 ppd. HAL COMMUNICATION CORP, Box 365RJ, Urbana, Illinois 61801. Phone 217-367-7373.

****

C.A.R.T.G. RTTY DX SWEEPSTAKES

Oct. 4-6.

See last month for details.

****

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RTTY JOURNAL

October 1975

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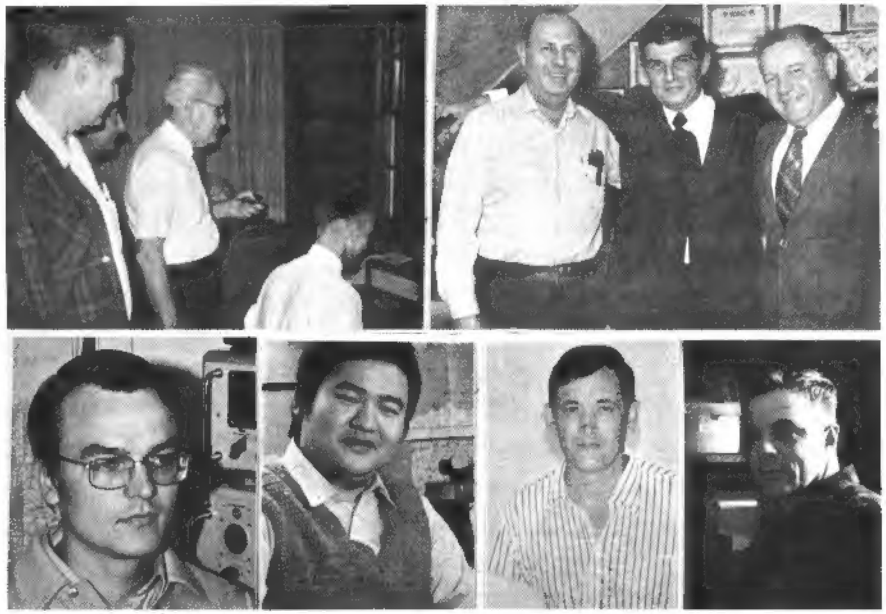

Top -- W6NRM, W6AEE, ZL1WB, W2LFL, F9LC, W2PLQ
Bottom - DL8VX, JH1ISF, LU2ESB, K1LPS

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RULES 1975 RTTY ART CONTEST

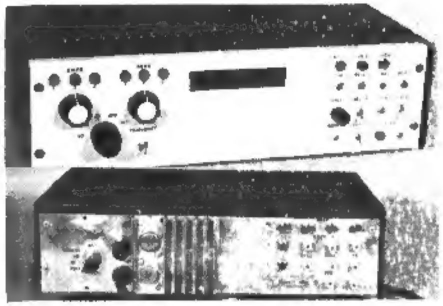
Oct. 1 thru November 30, 1975

1. All worldwide licensed radio amateurs and members of their immediate families (except as otherwise provided in these rules) are eligible to participate in this contest.
2. Entries must have been originated by means of manual inputs to a teleprinter using a standard communications keyboard, and may be submitted only by the originator of the art, or by the amateur on behalf of a family member.
3. Submitted art may be of any subject suitable for transmission via amateur radio.
4. Entrants may submit as many entries as desired.
5. Each entry shall be given a short title.
6. Submitted art may contain overline shading.
7. Tapes of entries shall be formatted to permit a reasonably short running time, and to be compatible with machines which do and do not downshift on space. Compatibility with machines which interchange the bell and apostrophe is not required. At least three functions must be used between each line, normally: CR LF LTRS.
8. Each line of the art shall be limited to a maximum of 72 characters (including spaces) and tapes to a maximum running time of 40 minutes at 60 words per minute for the art itself, exclusive of any other information on the tape.
9. Each entry must have been transmitted for the first time via amateur radio after 1 October 1975, and must be accompanied by a confirmation of at least one receipt of its transmission, identifying the title of the art and the call letters of the receiving and transmitting stations. All confirmations must be in writing (not by RTTY transmission), and must have been obtained by the entrant from the receiving station. Entrants may obtain necessary transmission of their entry by any amateur radio station.
10. The tape and prints of each entry shall carry the full name of the author, call letters of the submitting station, and mailing address. This information shall be both written upon a beginning leader of the tape and also punched in the tape to appear on page copy when reproduced.
11. Entrants must submit one (1) five-level paper tape and five (5) prints of each entry and by such submission agree that the tapes and prints may be used, duplicated and published for any purpose.
12. Tape, prints and transmission confirmation information should be securely packaged and sent to: RTTY Art Contest, c/o Don Royer, WA6PIR, 16387 Mandalay Drive, Encino, California, USA 91316. Entries must be postmarked prior to 1 December 1975. Entries will not be acknowledged nor returned. Winners will be announced as soon as possible after the closing date. (Since mail damaged tape will be of little value, it is suggested that tapes be wound tightly upon a hard core.)
13. Entries will be judged on the originality of the author in selection of subject matter, on excellence of technique in producing the art and formatting the tape, on overall appearance of the art when viewed from a distance, on suitability for publication, and on the entrant's compliance with these rules.
14. A committee of judges, made up from those individuals who have exhibited an interest in RTTY art, will select first, second, third and honorable mention winners. Winning entrants will receive a plaque for first place and certificates for other places. Winning entries will be published in the RTTY Journal and other amateur radio magazines. The decisions of the judges shall be final.
15. Officials and judges of this contest and members of their families shall not be eligible to participate herein.

*****

DIGITAL -- DATE, TIME, MESSAGE GENERATOR

Part 1 of 2



Front and rear view of the complete unit including UT-4 by KIZPX. Note heat sink on rear view. Clock display is cut out portion of front photo.

B.D. LICHTENWALNER
29 Michael Rd.
STAMFORD, CN. 06903

DIGITAL CLOCK/CALENDAR

The digital clock is a straight forward application of one of the medium scale integration chips currently on the market. The chip develops all the necessary information to indicate both time and date. The 7001 chip also has a built-in backup oscillator that will allow the chip to maintain the proper time and even if AC power is interrupted. A battery supply if needed to obtain the necessary operating voltages, however. In normal operation this chip displays time for 8 seconds then switches to date for 2 seconds. Provisions are made within the chip to force display of either time or date as requested. This is an important feature for operation of the DDT MG.

The clock uses internal circuitry to keep track of the month. It also keeps track of how many days will need to be counted before advancing the month counter. February 28 always advances to March 1, except the designers of the chip allow February 29 to be set manually into the counter for Leap Year. This is only 1 day in 4 years when manual setting of the clock will be required.

The 7001 chip is designed to drive either 4 or 6 seven segment LED Readouts. The first 4 LED Readouts indicate hours/minutes or months/day. The fifth and sixth digits are used in time mode only and indicate "seconds". The "seconds" digits are not used in the Baudot converter. Information is taken from segments A, B, E, F, and G to feed to the Baudot converter. Signals indicate which digit is being strobed, and are required by the de-multiplexer.

The circuit shown has driver transistors on the segment lines to provide additional drive to the LEDS. In the first version of the clock the LEDS were not bright enough to suit me so this slight addition was made. This portion of the project can be built as a stand-alone electronic clock and would be a great addition to most Shacks.

PARALLEL TO SERIAL CONVERTER

The function of this unit is to take parallel information from the memory bank and present it in serial form to the RTTY Loop. The basic timing pulses come from a NE-555. This unit has components selected to operate at 91 HZ. U20A gates the pulses from the generator to a set of frequency dividers consisting of U1, U2, and U3. The output of U2B and U3 are connected to an 8 line to 1 line multiplexer, U4. This approach was used by K4FUP and W4VWS in their message generator I. This circuit will take the data presented to the input pins and will in sequence place successive bits on the output line to be fed to the RTTY Loop for keying. The speed at which data is fed from the multiplexer is selected by section one of U9. For RTTY the output pulses are each 22 MS. For C.W. mode the two additional dividers are inserted in the divider chain by the switch action of U9. The speed is selected by the control line from the C.W. control latch (U17 and B). Each C.W. element will be 88 MS long. If the printer is left in lower case his speed will print a rather neat-looking string of O S across the page as the C.W. ID is sent.

Sections two, three, and four of U9 act as data switches to the multiplexer, chip U4. Their function is to force the start bit of each character in RTTY mode to a space, and to force the stop bit to a marking condition in RTTY Mode. In C.W. mode information bits O, 6, and 7 from the memory buss are switched to the multiplexer.

The circuit is placed in run mode for RTTY by actuation of RTTY run latch consisting of U17C and D. The start signal can be any negative-going pulse that reaches a level below 0.8 volts. This can be a switch closure as shown, a transistor (NPN) or a signal from some external TTL circuit.

U17A and B are similar to the RTTY

Run Latch. Interfaces, similar to the RTTY Run Latch are used for turn on. This Latch when turned on will reset the RTTY Latch. Provisions are made for resetting of this latch, as well as the RTTY Latch from an external signal. The C.W. Latch being turned on will fire the single shot, U5, that will allow a prewired address to be loaded into the Memory Address Counter. This procedure will be explained later in the Memory section.

The five data Bits that represent the Baudot characters that are to be sent to the serializer, U4, are run through a five pole double-throw electronic switch consisting of U10 and U11 A and B. This switch is controlled by U18B, a circuit that recognizes if data should be coming from the memory or from the Digital Clock Circuitry. More on this later.

MEMORY BANK

The Memory Bank consists of up to 8 read-only memories that can contain up to 32 RTTY characters in each memory, or a C.W. message. The typical C.W. ID message used for RTTY, consisting of DE and station call, takes approximately one half of a memory chip. The key to any memory system is in knowing where data is located. This information retrival scheme is known as "addressing". The "addressing" scheme for this circuit consists of two 4 bit counters U6 and U7. U6 and U7A are used to address the control lines on the 8223 ROMS. The particular 8223 that is to be selected is enabled by the output of the proper line from U8. This circuit converts the binary count of U7B, UC and D into a one out of eight activated line.

The RTTY message will begin at address 00000000, the address that is forced into the counter at the start of each RTTY message. The C.W. message can be loaded at any convenient address, preferably at a high address in the scheme. That starting address of the first character of the C.W. message is "wired" to the input lines of the counter. For my generator the C.W. message is contained in the last chip in the Memory Bank, so starts with address 11100000. To place this address into the address counter the preload pins of U6, A, B, C, D, U7A are "wired" to ground. The preload pins for U7B, C, and D "wired" to plus 5 volts through a 1K resistor. When the C.W. message latch is turned on, U5 fires, and loads the "wired" address into the counter. The pre-load pins have been brought to the edge connector of the circuit board used for this project for ease of wiring and to allow later expansion of control circuitry to increase the flexibility of this unit.

The output of the Memory Bank will be used 3 different ways. First Bits 1, 2, 3, 4, and 5 will be used to indicate the RTTY message to be sent. Second, all Bits will be used to encode the C.W. message, and third, in RTTY mode when Bit 0 is coded as A "1", the memory will be used as a control function generator. Also, if Bit 6 and 7 are "1"s when in the RTTY mode, the generator will change to C.W. mode and load the "wired" address into the Address Counter indicating the starting address of the C.W. message. When in C.W. mode the recognition of Bits 3, 4, 5, and 6 will indicate the end of the C.W. message. These end sequences are recognized by U21, and U15 respectively.

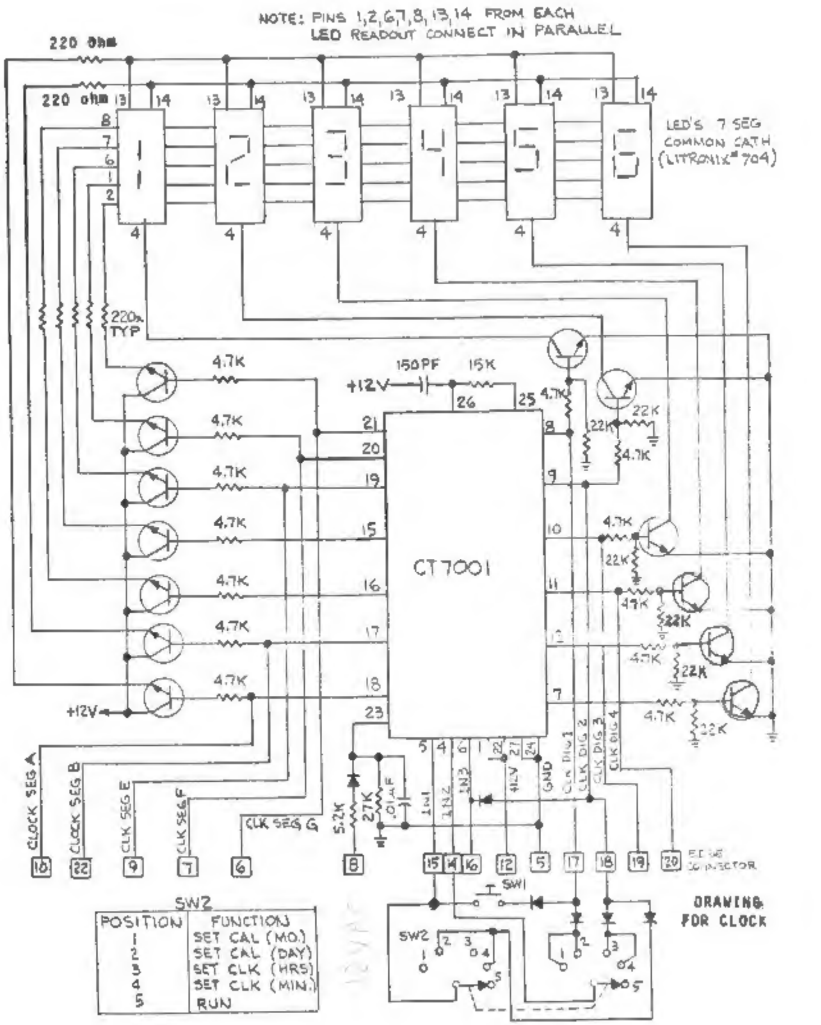
TRANSLATOR/DE-MULTIPLEXER

The function of this circuit is to select the proper digit from the Digital Clock, translate the seven segment code (only five segments used in the translator) for that digit into RTTY Baudot code, place it into latches and switch it onto the serializer input lines. Let's look at what the circuit does to accomplish these functions.

To signal the circuitry that a RTTY character is required from the clock, Bit 0 in the Memory is coded as "1". U18B combines the plus on the Bit 0 line and the RTTY Latch being "on" and forces the switch U10 to take its output from Latches U14 and U19. The information that is resident in the Latches comes from the translator U22. The translator is available from Electronic Development Inc.

The Clock segment information is being changed at better than 100 KHZ for each of the digits. To determine when the proper digit is available at the output of the translator, U22, we need to look at a bit more of the control circuitry. Again, in the mode of operation when the clock information is to be used in the circuit, the Memory Bank is being used as a control memory. As a result, the data from the memory that is usually sent to the serializer is "unhooked" since U18B has detected that we want a digit from the Clock/Calendar. To tell us which character is required, Bit lines 1, 2, 3, and 4 are used to select which character will be gated to the Latches U14, and U19. Let us see how the circuit operates. First, we decide that we want to "print" digit 1 from the clock. (This is the tens position of the hour or month). We code Bit 0 and Bit 1 in the Memory as "1". U20 will now have pin 13 positive. When Clock digit 1 (from the Digital Clock) goes positive, indicating the information on the segment lines is the data for digit 1, the output of U20A goes negative, forcing the output of U13 positive and firing the single shot, U30. This "opens" the gate on U14 and U19 and allows the data that is on the output of U22 to be placed into the Latches. Once this data is loaded, it is available for serializing through U4. The other digits are selected in a similar manner by gates U20B and U18C and D.

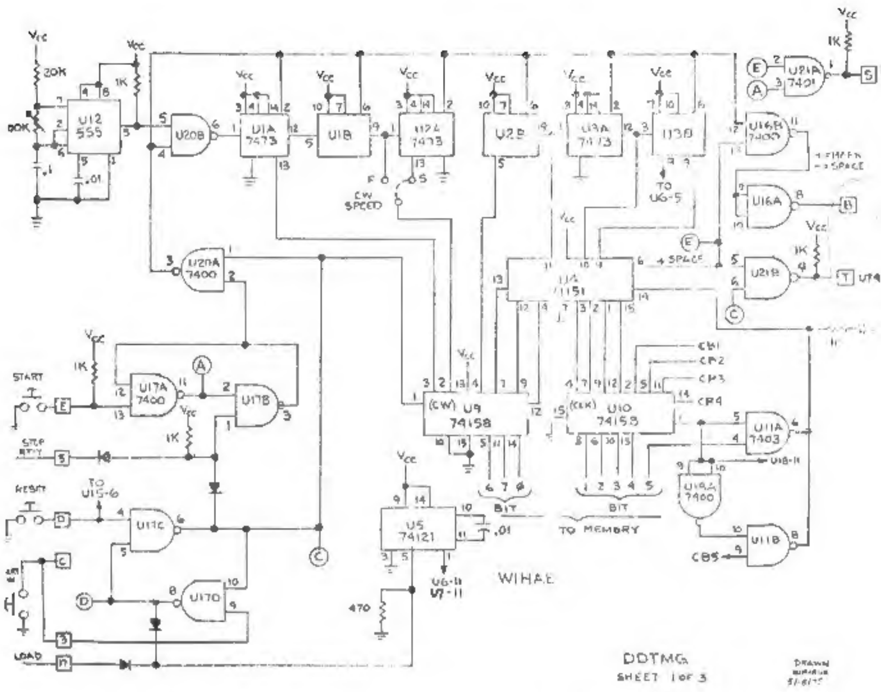
There are two additional sets of circuits that make the interface work properly. First, let's see how we select either time or date. Since Digits 1 thru 4 can be either time or date, the select circuits U20 C & D and U18C and D are used for both outputs. The real trick is to force the clock circuit into either time or date mode as required for your print out. To do this we use a pin on the Clock Chip called IN3. If this pin is driven plus at Digit 3 time, the clock will display time. If driven plus at Digit 4 time, the date will be displayed. If you want to display time, code Bit line 6 as a "1". This line being plus along with Digit 5 being plus will fire

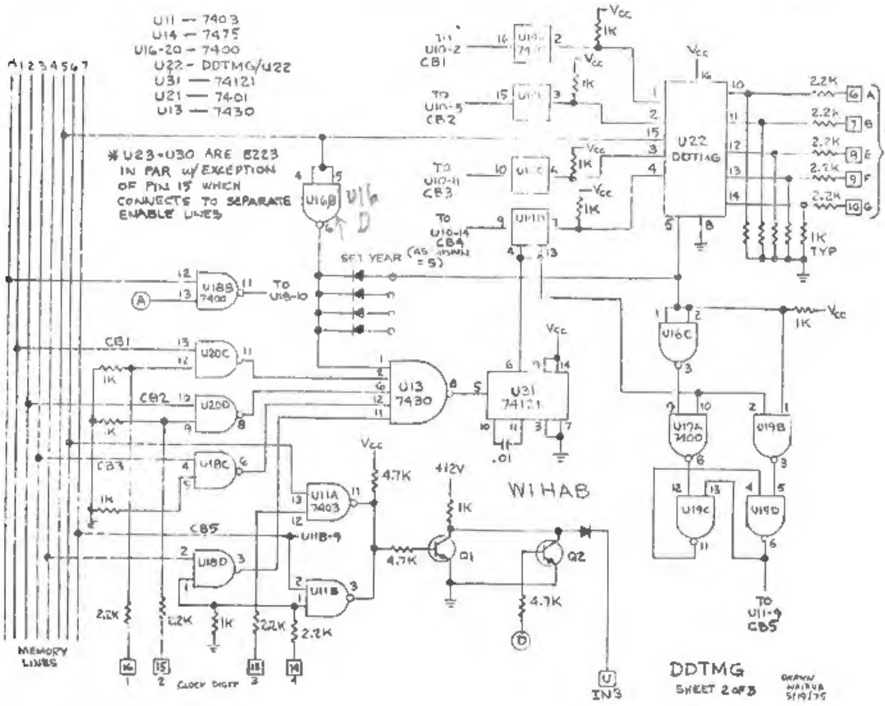


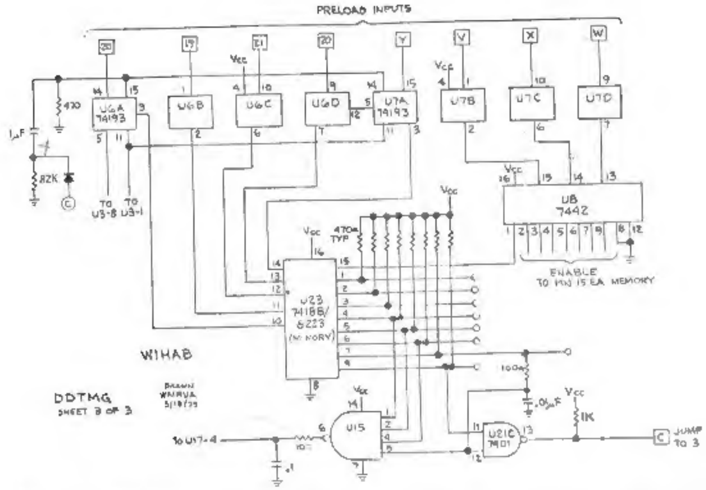
SW2

POSITION	FUNCTION
1	SET CAL (MO.)
2	SET CAL (DAY)
3	SET CLK (HRS)
4	SET CLK (MIN.)
5	RUN

DRAWING FOR CLOCK







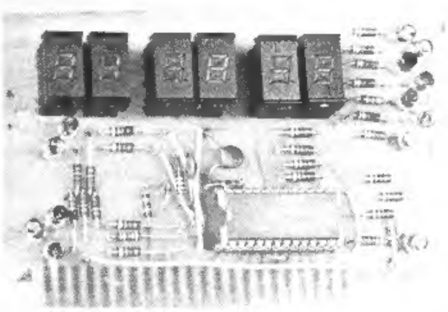
U11A and its output will go negative. When it does, up goes the input on IN3, and up comes the time. Bit 7 does the same thing for date. To keep the clock from really showing funny numbers during a C.W. message when Bit 6 and 7 are used as data bits, Q2 was added to make sure the output to IN3 would stay at ground potential.

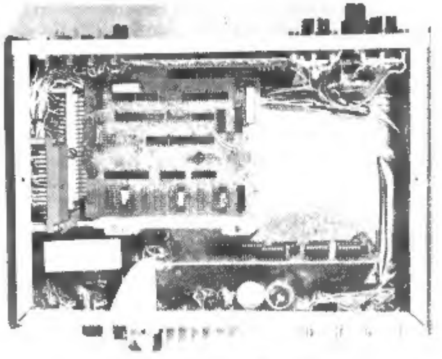
To be able to set the last digit of the year for the readout the U16A circuit was added. When you want to print out the last digit of the year place Bit 0 and 5 at a "1" level. This forces the data to come from Latches U14 and U19. However, Bit 5 deactivates the translator Memory U22. Instead of translating a character from the Digital Clock, all input lines, TU, U14, & U19 will go plus. To input data, the output of U16A is connected to the Bits required to represent the Digit required. For 1975 the "5" is coded by connecting a diode as shown between the U16~~A~~D output and the input to the 5 bit latch. For next year when a 6 is nedded, a diode will be required between Bits 1, 3, and 5. The first digit of the year data must be coded in the 8223 Memory.

The input of the data from the clock is translated to TTL level signals with a resistor network consisting of a 2.2K resistor in series with a 1K resistor and taking the signal from the junction. This design is not optimal for the design criteria for TTL logic, but has worked very successfully in this circuit.

The output of the circuit is interfaced to the ST6 with a very simple circuit. The output of U16D is run to a NPN transistor with a 4.7K resistor in series with its base. The collector circuit is connected to the base of the loop-keying transistor. Works every time.

CONCLUDED NEXT MONTH





DDTMG board containing message memory, serializer, de-multiplexer/ translator. Right - looking into the unit, large circuit board is the digital clock.

*****

RTTY-DX

JOHN POSSEHL - W3KV
Box 73 Blue Bell, Pa., 19422

Hello there . . .

Although there were mixed feelings about band conditions for the SARTG Contest, we all must agree that the turn out for the event was really great and with QSO numbers well over 200 toward the end of the Contest, there will be some record breaking scores posted when the final tally is made. The enforced eight hour break between segments keeps everyone refreshed for a new start when the gong sounds again and also makes it a must to make use of the lower frequencies if a good score is to be expected. Unfortunately at these latitudes at this time of the year, we were plagued with local electrical storms which precluded much use of forty and eighty as they were pretty much covered with static and QRN.

A sampling of the multipliers that were available on one or more bands were: CE, CR6, CT1. CX. DL, DM, DU, EA, F, G, HA, HB, I, JA, KH6, KZ5, LA, LZ, OA, OD5, OE, OH, OH0, OK, ON, OX, OZ, PA0, PY, SM, TF, TU2, UA, VK, XE, YV, YZ, ZP, 4X4, 5U7, plus all ten US and about half of the Canadian districts which counted as separate multipliers. The above alone accounts for 55 multipliers and we certainly missed some that were not reported. A good turn out indeed. I would imagine that many receiver dials stopped dead more than once when the prefix CH and XJ came up on the page. No, they are not new African or Chinese Republics but special calls allowed Canadian amateurs during this year. Perhaps too a special medal should be struck for Jo, CR6CA. He was in there giving out numbers in the midst of a real shooting Civil War going on in Angola.

More news of travels by some of the RTTY boys during the Summer months. Arne, OY1A, and Mike, OY1M, were in Vancouver, B.C. for a few weeks and by this time will be back in the Faroes and active again. Jean, FG7XT, was in the New York area in July and visited with W2LFL. From there he went to Canada and then to the West Coast, USA. Bill, KZ5BH, is always traveling around Central and South America on business and during the latter part of July did some operating on RTTY from TG9MR. Unfortunately, the time was short and only a few were around to QSO him from there. Ed, W3EKT, made a 30 day trip with camper and family around the USA covering over 8500 miles. No room for a printer so only made SSB and CW contacts. He did gas up 807 style at the QTH of K6WZ while on the coast.

On a few occasions in July we printed tape transmissions from WB2UEF directed to 8P6GC on Barbadoes, however, we never did print a response to the calls. Hop, W3DJZ, in SSB contact with 8P6GG found out that, yes indeed, Tony, 8P6GC, and Gordon, 8P6AY, are both printing but not as yet FSKing. So, perhaps by the time you read about it, they will have become active for a new country.

The Gambia (not Zambia) assignment for Sid, G4CTQ, has been confirmed and he was due to be leaving for there about the third week in September. Based on Sid's past performances it will not be long thereafter before he has a ZD3 call, or perhaps C5, and puts a RTTY signal on the air. This will be a first on RTTY from that country.

The European junket by Bud, W2LFL, and Knobby, W2PLQ, is still "GO" and remains pretty much as outlined last month. A pleasant plus for the boys is that Jean, LX1JW, will accompany them on a trip commencing with their visit to his QTH. With Jean so well known to all amateurs from his many years of working with the ITU and his knowledge of travelling through the various countries he will certainly be a welcome addition to the group.

The ST-5/AK1 furnished by W3EKT went via Sid G4CTQ, who also furnished the Creed printer, to G3ZXH/MM and Les has been quite active from the North Atlantic with excellent signals. He will be making many ports from time to time and one of his scheduled stops is Pitcairn Island, VR6, of "Mutiny on the Bounty" fame. We should perhaps remind you that the previously published rules for the "100 DXCC RTTY" Award follows the ARRL countries list and DXCC rules and as such and under Rule 8, contacts with ships anchored or otherwise, or aircraft, cannot be counted. QSL's can go to --

Les Anderson
M/V IBERIC, c/o Crew Mail
Shaw Savill Line
South Side Royal Albert Dock
London, England

Some good news from the Pacific. Mac, JH1ISF, sends word that Marcus Island will be active again from 15 September thru December. The operator will be Kei, JD1ABH. Look for him in the CARTG Contest. Kei is a very good operator and as you may recall he was active from Bonin Island last year giving many of us that country on RTTY.

On a recent evening we printed a strong signal calling CQ from ZP5NP on 14 mhz. While he did answer our call, he never did return again. He has also been reported on the West Coast on the 15 meter band. Name is Nelson and is located in Ascencion.

We hear that Ole, OX3DL, is helping to get some activity going on Svalbard (JW) which will be a first on RTTY. Jan Mayen (JX) did operate for a brief period in 1967 as JX6XF. The operator then was Alf, LA6XF. We are not aware of any additional operation from there since that time.

The machine from Uli, DK3CU, to LZ1KDP, has been shipped so we should be hearing of more activity from Bulgaria real soon. Kliment at LZ1KAB has been active again and was active in the SARTG Contest. He is quite weak into the States however and you have to dig down into the noise and hope for good conditions.

Soon after the ST5 arrived at HV3SJ, the machine broke down which accounts for the present lack of activity from there. We understand that another machine is on the way so activity should resume at an early date.

Prefix hunters found a good one with activity by LC1J from the site of the 14th Boy Scout Jamboree held at Lille, Norway during the latter part of July. If you had a QSO you can obtain the special QSL card via LA4LN.

A closing reminder. It is not too soon to check the equipment to be sure it is in top shape for the CARTG Contest, October 4 - 6. Log sheets and Zone Charts are available for SASE or IRC's.

Send to -- CARTG
85 Fifeshire Road
Willowdale, Ontario
M2L 2G9 Canada

73 de John

***

VHF RTTY NEWS

RON GUENTZLER, W8BBB Editor
212 GRANDVIEW Blvd.
Ada, Ohio 45810

This is one of those months when very little information is available. Please send in operating information.

Ken, K9DNY, reports that 147.480 MHz is in use for simplex RTTY in the Indianapolis area. It seems that the 146.100/.70 combination is in use for voice only repeater work.

Jim Labo, K0OST, Box 842, Denver, CO 80201, writes: "Recently moved to Denver from Dallas. Have not been able to locate anyone on VHF-RTTY." Does anyone know of any activity in the Denver area?

In the current awareness category: Bill King, W2LTJ, had an excellent article in Ham Radio, 1975 AUG., pp. 56-58: "Simple Audio-Frequency Keyer for RTTY."

Also in the current awareness category: Ed Webb, W4FQM, "Optimization of the Phase-Locked RTTY Terminal Unit", Ham Radio, 1975 SEP., pp. 22-26. This article contains a lot of interesting information for anyone experimenting with the PLL type discriminator.

We recently received a copy of "Static from Murray Hill," the publication of the Bell Laboratories Amateur Radio Club. John Sheetz, K2AGI, has an RTTY column in same.

That's it for this month. How about some operating (or technical) information?

73 ES CUL RG.

***

HITS & MISSES

From The Editor
and
his Mail

PLEASE NOTE ---

With a little soul searching but a lot of bank book balancing, we reluctantly have to announce an increase in the JOURNAL subscription rates. 10 years ago when we took over the JOURNAL, postage was 6¢ - then 8¢ - then 10¢ - we absorbed this additional cost by omitting one issue, then raising the classified rates but with a projected 30% increase again in postage to 13¢, there is no juice left to squeeze.

Using 2nd class is a lot of trouble and slows things considerably and the savings are small. We have been proud of our 3 week lead time from copy to customer and can offer news and articles several months sooner than average ham magazines. In addition printing and other costs have been increasing.

So, with no place to go sideways, not wanting to go backwards, we will have to go up. Effective immediately subscription rates will be:

1st Class - US, Canada and Mexico - $3.50 per year

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We admit the foreign air rates are high, but so is the postage. Over $5. per year at present and who knows what the next increase will be.

Frankly we hate to increase prices, but feel the raise is necessary and each individual subscriber has a choice. All present subscriptions will be carried until expiration at the old rates.

***

BACK ISSUES -

New subscriptions and classified ads are cash in advance as we have no method for billing. New subscriptions will be started with the current issue and one back issue, if requested. Please do not ask us to start any further back than this. Back issues - if available - may be ordered at 30¢ each at time of subscription. The JOURNAL is mailed about the 20th of the month preceding the dated month. May and June are a combined issue and July-August is a combined issue.

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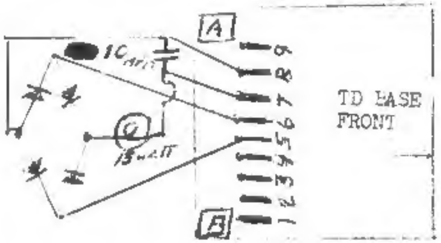
Using DC Magnets in Teleprinter

GEORGE BONHAM, KØBWH
391 Ursula St.
AURORA, CO. 80011

To those of you who might obtain the model 19 teletypewriter where the printer and TD motors are AC, but the TD release magnets and perforator magnets happen to be 115 volts DC. Here is a unique method to obtain the proper DC voltage, provided you don't want to purchase new AC magnets, or spend money building a special 115 volt DC supply. To build a full wave rectifier is no problem, but to find suitable dropping resistors needed is both costly and sometimes hard to find. A simple household light bulb of proper wattage can drop voltage and dissipates heat. Therefore by building a full wave bridge rectifier on a rather flat terminal junction board using HEP-170 or "22 short" bullet diodes, I prefer the "22 short" bullet type for they are common for TV repair and therefore inexpensive, approximately fifty cents each. This terminal board can be mounted across the two small plastic clamps at the rear of the TD base plate Assy. Reference to the New Rtty Handbook, by Byron M. Kretzman for wiring schematic of the complete model 19. There are nine slip connections on the back of the base plate Assy each having terminal screws for easy connection. Facing the front of the TD, counting left to right, slip connectors number 5 and 6 are the motor AC line input. Connect the bridge rectifier input wires across these two. Connect a 15 watt light bulb in series in the output of the bridge rectifier and connect to slip connectors terminals 7 and 8. Do not worry about polarity. There is no need to filter out ripple as the TD release magnet serves as its own choke, but should you hear a slight hum and want to get rid of it connect a value of capacitance across the bridge output after the light bulb. Start with about a 10 mfd, or less. The bulb also helps as a limiting resistor to protect the diodes from a high surge charging current because of the added capacitance. Should more voltage be desired to operate magnets use a slightly higher wattage bulb, conversely, use a lower wattage for less voltage. Placement of the light bulb and its socket explained further on.



NOTE: MOUNT FLAT TERMINAL BOARD HOLDING BRIDGE ACROSS CLAMPS A B

To operate the perforator and counter magnets. Refer again to the New Rtty Handbook for schematic of perforator, try figure 2.3.b.5. The perforator requires more DC current than the TD, so another full wave bridge rectifier was built using the "22 short" bullet diodes. It can be mounted upon the keyboard base Assy. Connect input wires across terminals 22 and 23 on printer. Use a 80 watt light bulb in series with the output of the bridge rectifier. Connect the output of the rectifier with bulb in series to terminals 24 and 25. No filtering capacitors were used nor needed. Do not worry about polarity. Now for the placement of the light bulbs. They were screwed into the old unused screw type fuse sockets located on the back of the table after making proper wiring changes. Drilling two new holes to receive the modern cartridge fuse holders. Adding a 4 amp fuse for the TD motor and release magnets, and a 2 amp fuse for the perforator. What follows is what I did, and it is up to the individual operator if they want to take the time, but I removed the polar relay, its bracket Assy, and all wires, resistors, and all items no longer needed. There is a terminal block near where the polar relay connections were attached; this is the location where the bridge rectifier for the perforator was mounted. The many outlets along the back of the table have been utilized by rewiring to receive the TU loop supply input, the 120 volt line, and the connecting the TD into the loop.

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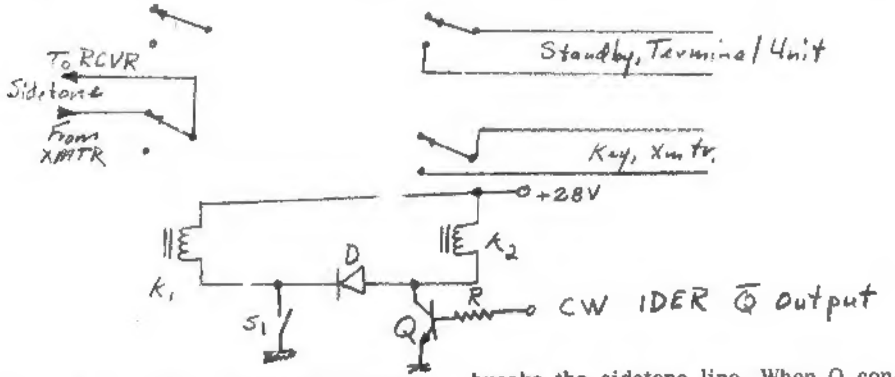
Equipment Control with TTL CW IDers.

MICHAEL SIMS, K4GMH
8408 Cherry Valley Lane
ALEXANDRIA, VA. 22309

The accompanying drawing is a method of controlling the transmitter and terminal unit with the output of various TTL CW IDERS. The circuit is probably not original, but may need to be resurrected from time to time as a filler in "RTTY Journal" for the ham just getting started on RTTY.



K1 and K2 - 28 volt crystal can relays
D - Diode capable of passing at least 100 ma. with a 40 V PIV
Q - 2N2219 or equivalent
R - 1K to 10K, 1/4 watt
S1 - SPST
For those who wish manual keying, substitute a push button switch or other keying lever for Q and R.

The circuit is made up of 2 relays. One relay turns the transmitter on and places the terminal unit in standby. The other relay breaks the sidetone line that is normally included in various transmitter/receiver combinations or transceivers. The sidetone disabling relay eliminates the annoying noise in the shack when transmitting, but only during a RTTY transmission as the relay is just used for RTTY. The transistor for the keying relay is included as most relays are not compatible with the normal TTL CW IDER outputs.

Surplus, 28 volt DC, crystal can relays are adequate for the average transmitter/ exciter, receiver combination (Drake equipment is controlled by these type relays at K4GMH). A simple half wave 28 volt DC supply is all that is needed to power the circuit. An alternate keying arrangement is included for those who have not succumbed to the frills of the automatic CW IDER.

S1 turns on the transmitter, enables the terminal unit's standby line and breaks the sidetone line. When Q conducts the transmitter is turned on and the terminal unit is placed in standby.

***

PAPER ANYONE?

One request we get is "Where can I buy teletype paper"? This months classified has an offer that is quite reasonable, at least by comparison with the last we bought, especially if you can get several others to split five cases with you. I assume freight is extra but this applies from any source. We mention this not as a free plug but in answer to a common request and service.

* * * *

***

RESULTS OF THE 7TH EUROPEAN RTTY-DX-CONTEST 1975

Winners of – WAEDC-Plaque 1975

I8AA, W3EKT, 4X4MR, DL0TD,

NORTH AMERICA

W3EKT	44950
W1GKJ	23496
K6WZ	14674
W3CRG	10850
VE7YB	5120
W0MT	4160
K5QBU	2244

SOUTH AMERICA

WA3JTC/ZP5	17514
CE3EX	259

ASIA

4X4MR	38117
DU1POL	4344
JA3AJW/1	4278

OCEANIA

KH6AG	8448
VK5RY	364

AFRICA
NO ENTRY

EUROPE

I8AA	59427
I1PYS	52437
DK1AQ	27280
I1COB	27132
DK1NB	25960
F8XT	22984
DK2XV	16297
IT9APZ	15900
HB9AVK	14893
OK30MP	10120
DK4ZF	8776
DL2XL	7466
DK3BJ	6608
DL0SA	6468
DK2OY	5824
DJ1QT	5742
SM5BKA	5115
OZ4DZ	4743
DK3NH	2783
CT1EQ	2772
OZ4FF	2641
DJ9IR	2295
DL1VR	1802
SM6EBM	1638
HB9HK	1298
TF3IRA	1218
HB9AHC	672
DJ2YE	396
LA2IJ	198
OZ4XR	126
OZ4EDR	54
OZ4CF	48
F6CDB	21
LA3PP	15

3. SWL

EUROPE

Horst Ballenberger (DL)	23622
I3-13018	19040
Wolfgang Geller (DL)	7676
I4-14707	7134
I1-57987	4144

NORTH AMERICA

Paul T. Menadier	7557

ASIA

JA1-3477	1152

2. MULTI OPERATOR

EUROPE

DL0TD	57920
DL0PW	25593
4U1ITU	25190
SK5AA	13905

NORTH AMERICA

W1MX	27948

****

The new rtty standards from Warsaw

by D. A. EVANS, G3OUF

ONE of the many papers presented to the April 1975 Region 1 IARU Conference was "Radio teleprinting standards in the amateur service", submitted by the British Amateur Radio Teleprinter Group. This article is intended to summarize the main points for rtty operators, and sketch the final outcome from the Warsaw conference in terms of the standards now recommended by IARU Region 1. Those interested in reading the full BARTG paper, together with the complete rtty recommendations, should consult the June 1975 issue of the *BARTG Newsletter*.

The formal discussions on rtty at the Warsaw conference can be divided into four main areas. (1) **Speed**—BARTG recommended 50 bauds at the conference because a survey in 1974 among BARTG members showed a 2 to 1 majority in favour of this speed. Many delegates spoke in favour of 45·45 bauds and at the vote there was no support for the BARTG proposal. The speed of 45·45 bauds is thus recommended by IARU Region 1. Essentially, for those who operate on the hf bands there is no change. Some vhf/uhf operators are recommended to change to 45·45 bauds to fall into line with the IARU proposals for the benefit of standardization on the vhf/uhf bands. (2) **Shifts**—IARU Region 1 recommends a preferred shift of 170Hz on all bands below 30MHz. On the vhf uhf bands shift is optional: 170 or 850Hz. On all bands fsk transmissions should be by fm generation techniques and mark is the higher radiated radio frequency. (3) **Reception** of rtty should be by means of a two-tone system for optimum communications effectiveness. (4) **AFSK** tones for vhf uhf [illegible] TG paper recommended no change from the 2,125 2,975Hz tones. The German group on the other hand in their paper recommended new lower tones for narrow and wide afsk shifts as they considered afsk on fm transmitters was a most useful mode for vhf/uhf local and autostart communications.

At the conference various technical points were put forward, principally by the German and Luxembourg delegates, supporting the new lower frequency tones. BARTG told the conference that it did not favour switching to lower tones as it would involve much equipment change. BARTG also stated in its paper that as fsk was a far more effective mode than afsk it seemed hardly worth changing the afsk tone standards at this stage. A vote was taken as to whether the tones should be changed or not. Clearly the German technical arguments had been convincing because the result was full support for the German proposals. The new afsk standard adopted by the conference for vhf uhf is therefore 1,275Hz (space) and 1,445Hz (mark). The 170Hz narrow shift is the new afsk standard; if 850Hz shift is used then the mark tone would be 2,125Hz. It was decided to form a sub-committee to agree the actual wording of this particular proposal. Included in the discussion was the fact that lower tone frequencies would be advantageous to afsk on fm transmitters. The final IARU Region 1 recommendation on afsk tones gives 1,275Hz (space) and 1 445Hz (mark) as the standard. In addition fm transmitters are recommended in preference to a.m. transmitters for afsk operation, the main reasons being: (i) there are tvi and audio-breakthrough advantages for fm, and (ii) there is far more fm equipment available for simple conversion to channelized afsk operation.

The following are the main technical advantages for the new tones. (a) The standard 1,275Hz space and 1,445Hz mark tones when fed to an upper-sideband ssb transmitter will produce correct 170Hz shift fsk keying, ie mark will be the higher radiated radio frequency. (b) When modulating an fm transmitter on afsk, compared with the old tone of 2,975Hz (space) the new tone of 1,445Hz reduces the power in the sidebands by some 33dB at 10kHz off channel when using 3kHz deviation, and thus offers considerable bandwidth reduction. Under certain conditions there is also about a 7dB improvement in signal-to-noise ratio. (c) All three tones (ie for 170Hz or 850Hz shift) will go through the ssb filters of ssb equipment without the problems previously associated with 2,975Hz.

The new standards do not affect fsk transmissions generated by feeding audio-tone keying to an ssb transmitter in any practical way at all. Stations generating fsk using the old and the new tones will be able to communicate normally and it will be impossible to tell who has switched to the new standard. When using ssb equipment in transceive mode on fsk, the main requirement is that the receive tones in the terminal unit correspond in frequency to the audio tones generated for transmit. In simple terms, if the receive terminal unit is changed to the new standards, the transmit afsk generator must also be changed to match it. ☐

Papers for IARU conferences are circulated to all Region 1 societies many months before the actual conference. This gives time for the specialist groups in the various countries to read the papers and make their views known to the conference delegates. It is then up to the delegates to put forward the views of these specialist groups at the conference and vote accordingly.

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